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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of: **MORIIZUMI, Kiyokazu**

Group Art Unit: 2827

Serial No.: **09/783,598**

Examiner: H. VU

Filed: **February 15, 2001**

P.T.O. Confirmation No.: 4350

**FOR: FRONT-AND-BACK ELECTRICALLY CONDUCTIVE SUBSTRATE AND
METHOD FOR MANUFACTURING SAME**

AMENDMENT UNDER 37 CFR §1.111

Commissioner for Patents
Washington, D.C. 20231

June 24, 2002

Sir:

In response to the Office Action dated **January 31, 2002**, extended to **June 30, 2002** by a two-month Petition for Extension of Time, please amend the above-identified application as follows:

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IN THE CLAIMS:

Please AMEND claim 2 to read as follows:

4/ 2. (AMENDED) The front-and-back electrically conductive substrate as claimed in claim 1, wherein the electrically conductive portion comprises an electrically conductive film covering a peripheral surface of the posts.

REMARKS

Claims 1-16 remain pending in the present application, of which claims 7-16 were previously withdrawn from consideration. Claim 2 was amended only for the purpose of clarifying a feature of the present invention. No new matter was added. Support for the Amendment may be found in the description of reference number 3 shown in Figure 1 of the present application. The objections and rejections set forth in the Office Action are respectfully traversed below.

Objection to the Specification & Rejection Under 35 U.S.C. §112, First Paragraph:

Both the specification was objected to and claim 6 was rejected under 35 U.S.C. §112, first paragraph because the specification allegedly did not support the limitation in claim 6 of “the insulation material of the insulative substrate includes a material that absorbs a difference in a coefficient of thermal expansion between the insulation material and mounted semiconductor components.” This is incorrect.

The subject matter recited in claim 6 is described by way of Figure 16 and the corresponding descriptions in the specification (see, e.g., pages 28-30), pertinent to the species previously identified by the Examiner. Both the objection and the rejection should be withdrawn.

Rejections Under 35 U.S.C. §102:

Claims 1-5 were rejected under 35 U.S.C. §102 over **Iino et al.** (U.S. Patent No. 6,207,259). Claim 4 was rejected alternatively under 35 U.S.C. §103, also over **Iino et al.** It is submitted that nothing in the prior art teaches or suggests all the features recited in the present claimed invention.

For instance, independent claim 1 recites a plurality of posts “composed of a material that can be anisotropically etched.” The Office Action alleged that **Iino et al.** disclosed the claimed plurality of posts (**12**) (column 9, lines 22-32) as depicted in Figure 3. **Iino et al.** describes an organic binder **12** as filling the through-hole vias that were plated with the through-hole conductors **10** in the structure depicted in Figure 3 (see, e.g., column 9, lines 22-32, and line 45).

However, such through-holes filled with an organic binder **12** do not constitute the claimed “material that can be anisotropically etched.” According to the present invention, the posts are formed without forming through-holes, **Iino et al.** relates to a wiring board in which via-holes **12** are formed in the insulating sheet **11** by a laser or by using a micro drill (column 6, lines 58-62). **Iino et al.** identifies the organic binder as **filling** the through-holes. There is no anisotropic etching at all associated with the organic binder. For at least this reason, the organic binder disclosed in **Iino et al.** does not correspond to the present claimed material of the posts.

The Office Action also stated “it is noted that silicon is an organic binder or thermosetting resin.” This is incorrect. One of ordinary skill in the art would readily know that silicon is not an organic binder and that silicon is also not a thermosetting resin.

The Office Action also alleged that the limitation “anisotropically etched” is merely a “product by process limitation” which was not given weight in determining the patentability of the device claim (referring to MPEP §2113). This is also incorrect. There is no product by process limitation recited in the present claimed invention. In other words, claim 1 does not recite posts that were created using anisotropic etching. Instead, claim 1 recites posts that are composed of a material

that can be anisotropically etched. In other words, the limitation for “anisotropically etched” is a **material characteristic** – not a product by process limitation. Accordingly, this basis for rejection is also improper and should be withdrawn.

For at least any one of the reasons above, the present claimed invention patentably distinguishes over the prior art.

With regard to claim 4, the Office Action alleged that it would have been obvious to one of ordinary skill in the art to employ a pad for mounting a semiconductor component. The Office Action further stated that “it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations pertaining to the phrase ‘for mounting a semiconductor components.’” This rejection is also improper. The prior art does not teach or suggest all the features recited in the present claimed invention, as discussed above. In other words, there is no prior art apparatus satisfying all the claimed structural limitations. Claim 4 depends from claim 1 and distinguishes over the prior art for at least the reasons that claim 1 distinguishes over the prior art. In addition, claim 4 recites the further provision of a pad in the claimed structural features recited in claim 1. Nothing in the prior art teaches or suggests this combination of structural features.

Rejections Under 35 U.S.C. §103:

Claim 6 was rejected under 35 U.S.C. §103 over **Iino et al.** The Office Action stated that it would have been obvious to one of ordinary skill at the time of the invention to employ different materials on the basis of its suitability for the intended use as a matter of obvious design choice. The rejection of claim 6 is also improper and should be withdrawn.

Basically, the Office Action did not address the actual claimed limitations recited in claim 6. While the Office Action merely addresses the difference in coefficients of thermal expansion (CTEs) between the insulation material of the insulative substrate and the mounted semiconductor components, claim 6 actually recites a material for the insulation material of the insulative substrate as being one that “**absorbs**” the CTE difference between the insulation material and the mounted semiconductor components. The Office Action does not at all address the claimed feature for absorbing the CTE mismatch between the insulation material and mounted semiconductor components. For at least these reasons, the rejection of claim 6 should be withdrawn.

Summary

In view of the aforementioned amendments and accompanying remarks, the claims are in condition for allowance, which action, at an early date, is requested.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact Applicant's undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

Attached hereto is a marked-up version of the changes made to the by the current amendment. The attached page is captioned "Version with markings to show changes made."

In the event that this paper is not timely filed, Applicant respectfully petitions for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully Submitted,

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